

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of claims in the application.

1. (Currently Amended) A system for assisting regeneration of a particle filter integrated in an exhaust line ~~[[3]]~~ of a motor vehicle diesel engine ~~[[1]]~~, the engine ~~[[1]]~~ being associated with various units, including:

- means ~~[[2]]~~ for admitting air into the engine;
- means ~~[[4]]~~ for recycling exhaust gases from the engine to the inlet thereof;
- a turbocompressor (5);
- a particle filter ~~[[7]]~~ including a filter medium adapted to trap particles of soot present in the exhaust gases of said engine ~~[[1]]~~;
- an oxidation catalytic converter ~~[[6]]~~ on the upstream side of the particle filter ~~[[7]]~~ in the exhaust line ~~[[3]]~~ or combined therewith;
- a common system ~~[[8]]~~ for feeding fuel to the cylinders of the engine, including electrical fuel injectors (9, 10, 11, 12) associated with those cylinders;
- means ~~[[16]]~~ for adding to the fuel an additive adapted to be deposited in the bed of soot particles to reduce the combustion temperature of particles trapped in the particle filter ~~[[7]]~~ and to propagate their combustion;
- means (20, 21, 22) for acquiring information relating to various operating parameters of the engine and the units associated therewith;
- means ~~[[17]]~~ for monitoring the operation of the air admission means, the recycling

means, the turbocompressor and/or the fuel feeding system in order to monitor the operation of the engine, these means being further adapted to trigger a phase of regenerating the particle filter by combustion of the particles trapped therein by triggering a phase of multiple injections of fuel into the cylinders of the engine during their expansion phase;

~~the system being characterized in that~~ wherein said filter medium of said particle filter ~~[[(7)]]~~ is coated and/or impregnated with a material capable of constituting a reserve of oxygen adapted to propagate the combustion of the soot during an operation of regenerating the particle filter.

2. (Currently Amended) A system according to claim 1, ~~characterized in that~~ wherein said material is cerium oxide.

3. (Currently Amended) A system according to claim 1, ~~characterized in that~~ wherein said material is a mixed oxide of cerium and zirconium.

4. (Currently Amended) A system according to ~~any one of claims~~ claim 1 to 3, ~~characterized in that~~ the particle filter ~~[[(7)]]~~ is also coated and/or impregnated with a catalyst encouraging the triggering of reactions tending to reduce the pollutant emissions of the engine.

5. (Currently Amended) A system according to claim 4, ~~characterized in that~~ wherein the particle filter ~~[[(7)]]~~ is also coated and/or impregnated with a catalyst encouraging the triggering of combustion of the soot.

6. (Currently Amended) A system according to claim 4, wherein or claim 5, characterized
~~in that~~ said catalyst is a metal from group VIII such as platinum, palladium, or rhodium, or a
mixture of such metals.

7. (Currently Amended) A system according to ~~any one of claims~~ claim 1, wherein to 6,
~~characterized in that~~ the distribution of the various materials in the filter ~~[(7)]~~ is non-uniform.

8. (Currently Amended) A system according to claim 7, wherein ~~characterized in that~~ the
material capable of constituting a reserve of oxygen is preferentially disposed in the downstream
region ~~[(29)]~~ of the inlet passages ~~[(25)]~~ of the filter ~~[(7)]~~.

9. (Currently Amended) A system according to claim~~[s]~~ 5, wherein the distribution of the
various materials in the filter is non-uniform, and wherein 7 or 8, characterized in that the catalyst
encouraging the triggering of the combustion of the soot is preferentially disposed in the upstream
region ~~[(28)]~~ of the inlet passages ~~[(25)]~~ of the filter ~~[(7)]~~.

10. (Currently Amended) A system according to ~~any one of claims 7 to 9,~~ claim 7, wherein
~~characterized in that~~ the terminal portion of the downstream region ~~[(29)]~~ of the filter ~~[(7)]~~
contains no material constituting a reserve of oxygen and no catalyst.

11. (Currently Amended) A system according to ~~any one of claims~~ claim 7, wherein to 10,
~~characterized in that~~ the material constituting a reserve of oxygen is preferentially disposed in the
peripheral region ~~[(34)]~~ of the cross-section of the filter ~~[(7)]~~.

12. (Currently Amended) A system according to claim 5, wherein the distribution of the
various materials in the filter is non-uniform, and wherein any one of claims 7 to 12, characterized
~~in that~~ the catalyst encouraging the triggering of the combustion of the soot is preferentially
disposed in the central region ~~[(35)]~~ of the cross-section of the filter ~~[(7)]~~.